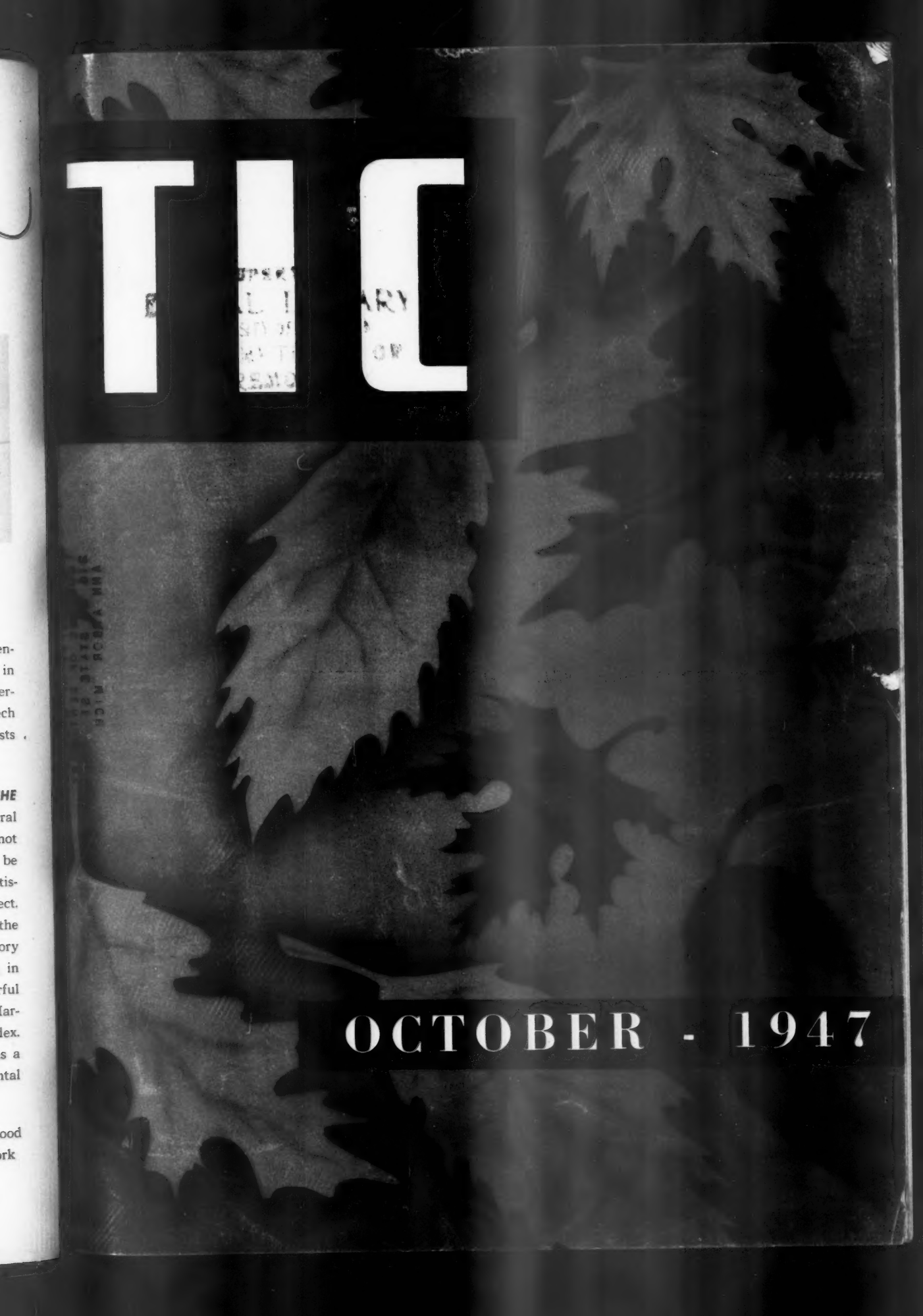
TIC
OCTOBER - 1947

Tic MAGAZINE

IS SENT TO

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WITH THE

COMPLIMENTS

OF

Reared High On Waste

AN ANALYSIS OF THE AMERICAN STANDARD OF LIVING

By ALFRED H. WILLIAMS

* * *

Reprinted from *The Land*, Volume III, Number 3

The total cost of this Second World War to date exceeds 900 billion dollars, and every hour that passes adds ten million dollars to that score. The business of war is to destroy. Indeed, one measure of the progress of an efficient army is the extent to which it destroys the lives and the material of the enemy and in the process of doing that evil, of course, it destroys its own. Within the hour, we shall have destroyed ten million dollars' worth of property. We are destroying a quarter of a billion dollars' worth of property a day, and about all that we can hope to get out of victory, is the retention of the status quo with respect to our liberty.

In contrast to that, the purpose of conservation is to maintain and to protect. Let us step aside for a few minutes from the business of global war in which so many of us are engaged and contemplate this theme. We need all the perspective we can get. This global manifestation of man's inhumanity to man raises the question: Are we not at the end of a fundamental era in human history, at an apex of destruction?

October TIC 1947

Published and Copyright, 1947
by TICONIUM, 413 North Pearl Street
Albany, N. Y., U. S. A.

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Cover Design by John Schuster, Chicago.

Printing by New England Printing & Lithographing Company, Inc.

Edited by JAMES ROBINSON

25c per copy, $2.50 per year

Consider the continent of North America, the continent that the white man saw when he stepped on to these shores. The physical configuration of a continent, as in the case of an animal, is determined largely by the skeleton. Here we had three large pieces of bony structure: In the West there were the western Himalayas, two high mountain ranges; within those ranges, a high, dry plateau extending all the way from Alaska down the North American continent through to South America. Over in the East we had the lower, smoother Appalachian chain, and up at Nova Scotia, swinging around in an arc, up around the Hudson Bay, we had the Laurentian Mountains.

Those three bony structures determined the physical configuration of this continent. Within those mountain barriers we had the greatest expanse of fertile land in a temperate zone that this world knew about. We had broad, level, rolling ground, abundant rainfall, plenty of water. We had a land rich in minerals, especially coal and iron and copper and petroleum. It was easily approachable from the European side. It was adaptable to the plants and the animals of the old countries, and there were some new crops here: tobacco, corn, squash, beans.

The population was only about ten million Indians scattered broadly. What was the condition in Old World continents? Asia was already crowded; too many human beings there. Africa was largely tropical or desert. South America was habitable for the white man only at the narrow southern portion, and in a few plateaus. Australia was partly tropical and largely too dry. This was the only

large body of habitable land for the white man.

We had set here in this country the stage for a group of fundamental cosmic forces that were about to be let loose. Simply to sketch these forces: We had all of the intellectual and the spiritual, the moral, values that were released by the Renaissance. Feudalism was about to die and release the fetters that bound many thousands of men to the soil in an unjust way. We had the industrial-mechanical revolution about to break. Watt invented the steam engine in 1770. That engine was applied to mining, to manufacturing, to transportation. And we had to follow what has been known to historians as the Pax Britannica, almost a century of peace.

What was the result? The standard of living of man, which had been at a plateau for almost twenty centuries, began to rise. The standard of living of the citizen of the Greek city state was as high as that of the citizen of Elizabethan England. For twenty centuries man had not progressed from an economic standpoint, when suddenly all of these forces came into conjunction.

What was the effect of that? The effect of that was to increase world population from 600 million to 1600 million within a century.

To bring this picture into sharper focus, consider the developments within this country only: Sixty million immigrants were siphoned out of Europe and brought to these shores. What was the nature of these people? Venturesome, energetic, democratic, liberty-loving, heterogeneous, free from historical drag that traditions put upon us. There was no pushing of the ancestral wheel-barrow ahead of these people. We had none of that. We had freedom of enterprise. We had a plentiful supply of British capital which was amassed due to the fact that the Machine Age got a start fifty years ahead in Great Britain, and she was able not only to equip her own plant, but also to provide capital for ours.

The result was, with the opening up of this continent and the release of these forces, we had America participating in building the industrial, the economic plant of the world. We helped to equip in considerable measure the factories, the farms, the mills, the mines, the railroads: 100,000 miles of railroad were constructed between 1825 and about 1890.

The result was a high standard of living, the highest in the world. We brag of that standard of living. We seem to think that its excellence has derived from some peculiar quality which we alone among the peoples of this planet possessed. We set out literally to subdue the continent, as though the continent were a wild animal whose interests were inimical to the interests of man, and we did subdue the continent. And we shipped abroad for decade after decade huge quantities of corn and cotton and wheat and iron and steel and petroleum and copper and pork and lard and many other types of resources. A European historian has wisely said that the flow of these materials to the continent of Europe had an effect upon European civilization comparable to the flow of gold and silver during the days of the Conquistadores.

I maintain that a large element in this high standard of living which we were able to achieve came from consuming our fat, came from following the policy, "After us the Deluge." It was by a depletion of our resources that we achieved the very high standard of living we have been able to acquire.

Dr. Bennett, and others are technically qualified to tell us what this rape of a continent has meant in the way of a depletion of the soil resources: 100 million acres all but irretrievably lost, 100 million acres grossly depleted so that we shall have to work vigorously to restore their life, 100 million acres that we ought to begin to conserve immediately; 300 million acres that have been mistreated.

What about the balance? Roughly 460 million acres which we must learn how to live with if they are to be the permanent possession of this land and the heritage of our children.

Let me compare this standard of living with the standard of living of two other nations. Let us take Sweden for illustration, a land of six million people, compared to 135 million here. Sweden has been able to achieve, with moderate physical resources, a standard of

living that, while moderate, is entirely satisfactory to those people. How has she done this?

Consider the elements: Instead of a heterogeneous population, she has had a homeogeneous population. They are intelligent and they are educated. Every Swedish farmer has a codified book of the laws of the land in his home, and he not only has the book there, but he reads it and studies it and thinks about the problems of law and order. Sweden has excellent social institutions, unsurpassed technology; yet despite that, possessing as she does, average physical resources, she has been able to get only a moderate standard of living, and she has been able to achieve that by conservation of natural resources.

The Swedes have practiced conservation since 1600, and Sweden provides a maximum amount of economic security with a fair standard of living. Let me give you one illustration. I visited Sweden in a year abroad studying industrial and economic conditions. I saw one business venture, but bear in mind this was a single venture. What was that company engaged in? It was engaged in mining ore, in smelting the ore, in rolling the iron, in fabricating it into steel; it was engaged in the production of electricity; they ran a battery of charcoal distillation establishments; they ran dozens of farms; they had an extensive lumbering operation—all of those integrated into one enterprise that gave a security, a stability to employment, and gave the Swedish workers high annual wages and gave to the operators low unit labor costs,—an ideal situation.

Compare Sweden and the United States with Japan. Here we have a country with scanty natural resources. What are the factors in this situation? Again a homogeneous people, equipped with great physical energy, the like of which the Western World knows not, a capacity for regimentation, modern technology, security not through origination but through copying from the West, and rigorous programs of conservation. Yet, despite all of those favorable factors, we have in Japan a meager standard of living.

The burden of this comparison of these three countries is that you must, if you are going to have an enduring high standard of living, have a rich fundamental foundation of natural resources.

One could stop and digress and talk about Italy and its search for a place in the sun and Germany's thirst for living-room. I have been all through Italy. With the exception of the valley of the Po, it is poor as a church mouse. It will have great difficulty in achieving a high standard of living with that paucity of natural resources.

What, then, are we to do at the national level with our resources? Let me read from a statement by the Beards in their two-volume work, "The Rise of American Civilization." This is the first sentence in the book: "The discovery, settlement, and expansion of America form merely one phase in the long and restless movement of mankind on the surface of the earth . . . .

"Viewed from a high point in time, the drama of the races seems to be little more than a record of migrations and shifting civilizations, with their far-reaching empires—Babylonian, Egyptian, Persian, Abyssinian, Athenian, Roman, Mongol, Turkish, and Manchu—as fleeting periods of apparent pause and concentration in the universal flow of things."

Are we to assume that we are going to continue in this country to mistreat nature and have a high standard of living? The pages of history are replete with these illustrations of nations which, relative to their surrounding nations, had a standard that was far in excess of that that we have, comparable to our surrounding neighbors, and who have gone the way of all flesh. In fact, the day is now here when we have low standards. Look South to many parts of our Cotton Belt. I talked on Sunday to a friend who is the economist of the Cotton Export Association. He said that cotton at the present time, American cotton, is selling six to eight cents above Brazilian cotton of comparable grade in the foreign markets. Why is that? Why are we now high-cost producers of cotton? It is because in the decades that we shipped cotton abroad we literally shipped tons of topsoil with every bale of cotton, and when you have denuded

from the surface the vegetation and the topsoil and left the raw, red earth (as we can see, all of us who have visited the South) then you have a poor farmer, and a poor farmer means poor technology, poor practices, and poor practices mean poor farmers. It is a vicious spiral, going downward.

The Dust Bowl, the cut-over level lands—or, to return to industry, because we ought not indict agriculture alone, let's look at industry. They took me to see the slums in Sweden. The slums of Stockholm, compared to our slums, are not slums at all. I visited a Swedish steel town and saw cottages set in the woods, surrounded by gardens, that put to shame Coatesville, Pennsylvania, or Gary, Indiana, or any of the steel towns in America.

The days ahead are going to be difficult days. There is no time here to analyze the petroleum situation. But even those who disavow the prospect of an imminent exhaustion of petroleum will tell you that the picture is a black one when we take the long view.

Let me put aside, however, the point of view of the alarmist. Let's ask the question which many men, particularly those trained in the engineering field say: "Can't we rely on science and technology to bail us out? Can't we synthesize the materials?" That is one of the arguments in the petroleum controversy. "Can't we liquidize coal and thus get the hydrocarbon combinations we need? If we do that, we have a supply for five centuries."

That overlooks one very important factor: That is the fact that nature has a balance, and when you disturb the balance of nature as we disturbed the balance of nature when we set out to conquer this continent, you disturb the mutual interdependence of soil and water and grass and trees, and nature is going to retaliate.

We cannot with impunity continue to violate nature's laws. The whole structure weakens when the land weakens. Let's turn aside from economic values and look at the moral and spiritual values. Let's look at the esthetic values that are to be derived, the sense of being a part of a special place.

I traveled to Europe once with a tailor, a custom tailor on Fifth Avenue in New York, a man who had achieved a very fine existence. He was visiting his home in Norway, and we went up the Norwegian coast and we reached his home. He had been talking about it for six days, and as a stranger, with no sense of being a part of that special place, I said, "What a Godforsaken place!" But it was home to him. It was a part of that man's relationship to this planet. It was beautiful to him, just as this beautiful state of Maryland is to you people. So I think that there are moral, there are spiritual, there are esthetic values that attach to this whole movement, and I believe that this whole movement is part of a deep inner questioning that we now are going through. Beholding from day to day the ultimate in the degradation of the human spirit, we are questioning the fabric that we call civilization.

This is part, in my judgment, of a deep, fundamental urge. Friends of the Land is a symbol of a spiritual rebirth. Those of you who are concerned about the preservation for your children and their children on this beautiful countryside, which before the Colonists came was an Elysian Field for the American Indian; those of you who know that you are a living part of this very territory hope it shall be restored to some of its primitive value. God speed the work

---

Dr. Williams is President of the Federal Reserve Bank of Philadelphia. This is what he said at the Baltimore Conservation Forum, recorded by stenotype.

* * *

What a man does with his hands is secondary. It is what he does with his brain that counts. That is what starts things going, what creates.

Success is not a question of age, but self faith. Before we can win out in life we must believe in our power to win.

Altho men are accused for not knowing their own weakness, yet perhaps as few know their own strength. It is in men as in soils, where sometimes there is a vein of gold which the owner knows not of.

—Daniel Swift

The Sherman Achievement in Oral Health

By MEL DORIUS

Good teeth are the rule, not the exception, at the Sherman School in Salt Lake City, Utah, thanks to the cooperation of the school, the children and the Parent-Teacher Association.

Records compiled at the end of the school year disclosed an exceptionally good record for the 437 pupils. The record was so good that Dr. R. C. Dalgleish, director of the dental section of the Utah State Board of Health, called it "amazing."

This highly desirable situation is not an accident, but the result of an intelligent program launched with extensive examination by a dentist at the beginning of the year and a follow-up program through the rest of the year.

Progress is noted on unique and individual charts in each school room. These charts are given such prominence throughout the entire year that the children's interest never wanes for a single day.

All the charts have a similar theme, but the presentation is different. The charts of the names of each child in alphabetical order and some have the child's picture by his name.

Dr. Munn Q. Cannon examines one of the pupils at the Sherman School in Salt Lake City, Utah as three classmates look on.

It's the chart that does it. Mrs. Ollie D. Sheffield, president of the Sherman Parent-Teacher Association, discusses the "good teeth" program and the progress chart at the front of the room with a group of children. J. Lee Anderson, principal, stands at the side of the room.

When the examination is made at the beginning of the year each child who has perfect teeth or who needs no correction or who has had reparative work performed during the summer has a gold star placed by his name and picture.

Each other child who is found to need corrective work is given a slip at the time of the examination which he takes to his parents. As soon as that slip is returned signed by the family dentist that he has either had the necessary work done or has a definite appointment for such work up goes another star.

At the end of the year, slips had been returned to the classrooms by 431 of the 437 pupils. And at the beginning of the year just closed only 116 were found to be in need of dental work.

When the program was first undertaken three years ago more than half of the children needed some kind of dental work and during each succeeding term the number needing repairs has been fewer.

"This proves to us," said Mrs. Ollie D. Sheffield, president of the school's P-TA, "that the children and parents are aware of the good teeth program the year around and that corrections are made almost as soon as they are needed."

"There is no force or pressure brought to bear on the children," explains J. Lee Anderson, principal. "The program just carries on through its own momentum."

"Each child," he added, "wants to see a star up there on the chart by his name and he soon gets it there. It is surprising how fast the dentist's examination slips are returned."

So far the work of examining the half a thousand youngsters has been done by Dr. Munn Q. Cannon whose home is within the school boundary. He has refused to accept payment from the Parent-Teacher Association although it is ready to pay the fee. The P-TA fund, raised through programs of entertainment at the school during the year, also are used for children of families who might need financial aid for the extra expense of dental work. However, only a few have taken advantage of this fund. A larger health and welfare fund of the Granite School District, of which the Sherman School is a part, is available for that work.

Their names are on the chart. J. Lee Anderson, principal, and three pupils in the class of Mrs. Clara Petersen, teacher, as they look over the room's honor roll.

About the six children who did not return their slips Mrs. Sheffield had this to say. "The children are from the same families who refused to cooperate last year and the year before that. We have tried everything, but they are people who just don't seem to want anything to do with dental health."

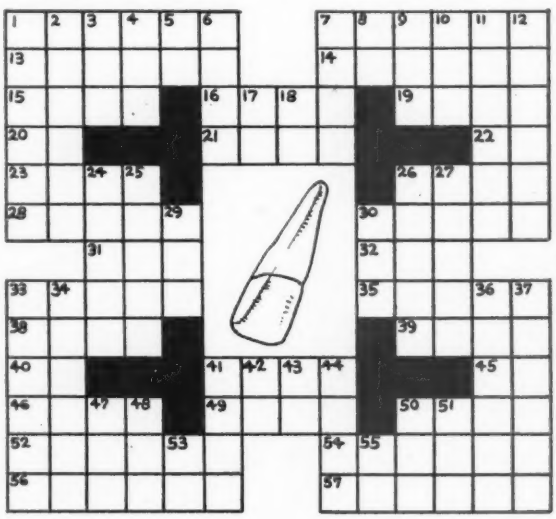
Mel Dorius
977 First Ave.
Salt Lake City 3, Utah

A Crossword Puzzle . . . by DR. BILLETER, Jackson, Miss.

ACROSS

1. tooth decay
7. avenue
13. tissue without tone
14. pair
15. bows
16. space
19. row
20. preposition
21. endure
22. parent
23. at
26. taunt
28. bar
30. writing
31. shade of porcelain
32. essential for respiration
33. tired
35. part of tooth
38. care for
39. colorer
40. negative (prefix)
41. crowd
45. negative
46. ruler
49. within (comb.)
50. driven at angle
52. scar,.....ix
54. renter
56. hat maker
57. deceivers

Solution on Page Eight



DOWN

1. anterior tooth
2. makes amends
3. enamel — — —
4. case (abbr.)
5. blood v--n
6. crust over wound
7. mark from wound
8. preposition
9. furrow
10. upon (prefix)
11. resin (pl.)
12. zinc s------
17. concerning
18. h--t treatment
24. town in Greece -----s
25. type of bur
26. tested
27. fret
29. where caries is found
30. wide vessel
33. used to close incision
34. country
36. type of porcelain crown
37. eats
41. title of respect (Ger.)
42. preposition
43. South Dakota (Abbr.)
44. related
47. deed
48. rodent
50. pat
51. full (suffix)
53. Tellerium (sym.)
55. in (prefix)

The SHARP EXPLORER

By SHIRLEY EASLEY WEBSTER, B.S., R.D.H.

THERE'S A QUESTION IN THE AIR NOW as to whether or not dentists will read, and we presume this applies to hygienists too, since they share in the traditions of dentistry. Howard Riley Raper, the author of the book, *Man Against Pain*, which has attained popularity, good reviews from all quarters, and been widely read by the laity, has not, Dr. Raper asserts (in the July issue of the Kansas State Dental Association Journal) been given proper attention by dentists.

DON'T THEY CARE TO KNOW the true story of how anesthesia was given to mankind through the dental profession? Don't they realize that the other great professions have great traditions behind them? . . . Lawyers hang Lincoln's portrait in their offices and physicians revere their heroes from Hippocrates to Osler. But what dentist gives a thought to Morton or Wells. . . . ?

WE ARE INCLINED TO THINK that *Man Against Pain* has not been publicized to dentists in such a way as to stir their imagination and curiosity. A person may be intrigued enough to read a book, but seldom can be driven to it. The dental brethren are no doubt merely human beings who shy away from doing what they *ought* to do in favor of what they *want* to do. At any rate we are now sufficiently captivated by Dr. Raper's style (after reading his article) to go out and bring home *Man Against Pain*. We shall be able then to speak with more authority on whether the reading of it is a duty or a pleasure. Maybe, happily, both.

DURING THE BOSTON CONVENTION we were dependent on the New York press for news coverage of the event and we must say the reporters did not seem wildly bent on splashing the world-shaking pronouncements all over the papers. And then—those misleading headline writers again: "Zinc Chloride Used to Bar Tooth Decay" appeared on page 15 of the *Times*. Those super-simplified headlines inevitably mean headaches for the dentist. "Give me ten cents worth of zinc chloride," we can hear some zealous parent asking the druggist, "I'm going to have my little Jimmie gargle with it every night before he goes to bed."

THE MUCH HERALDED NATIONAL SURVEY of dental hygienists, undertaken by Esther Wilkins and the Massachusetts girls, begun last year with great enthusiasm has already cost the committee a huge amount of effort, if not expense, and the returns so far have been disappointing. We are going even further than Dr. Raper (who wonders whether dentists will read). We wonder whether dental hygienists can either read or write. Returning a survey of obviously national importance seemed like a fairly simple deed requiring perhaps a minute or two of time. Yet of the 5302 copies of the questionnaire mailed in June of last year only 1635 returns came back! Are we lazy or just not too bright?

TWO SIGNIFICANT ITEMS appeared in the August 1 issue of the ADA Journal confirming our belief that dentistry, far from being a static profession, knows where it is headed and is making progress toward definite goals.

ONE ITEM WAS THE LEAD ARTICLE BY DR. HENRY KLEIN of the U. S. Public Health Service, and his associates, entitled "Dentist-Time

Required to Perform Dental Operations." On the surface, this theme might appear a bit dull and statistical. Practically no research has been done in this field though and it is absolutely necessary to have the facts (not theories) when planning programs of public health for the future. Dentistry involves technical procedures which cannot take their pattern from any other profession, certainly not medicine.

DR. KLEIN INTENDED this research as only the beginning, but some of the findings are already indicative. For instance:

> "younger dentists complete an operative service, on the average, in shorter time than the older dentists"
>
> but:
>
> "Dentist-time for prosthetic services is not affected consistently by age of dentist."
>
> And, except under ten years
>
> "age of patient does not seem to have a marked effect on time required per operative service. Age of patient, however, does seem to bear a significant relationship to dentist-time per prosthetic service."
>
> "Age of patient affects inversely the number of visits and time per visit. The number of visits required per case increases more or less consistently with age of patient, and dentist-time per visit tends to decrease as age of patient advances."

Another interesting finding was:

> " . . . for every type of operative service the use of a chair assistant saves dentist-time."

However:

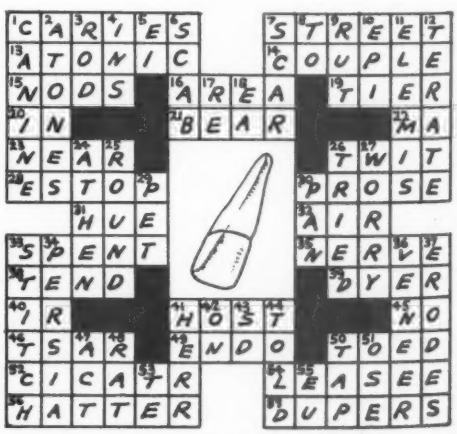
> "In the performance of surgical operations the chair assistant does not appear to save an appreciable amount of dentist-time."

THE INFLUENCE OF THE DENTAL HYGIENIST in conserving dentist-time will undoubtedly be part of the future studies along this line of research.

TESTING PROGRAMS ARE WIDELY USED all over the lot these days but the ADA's recently inaugurated experimental aptitude testing of dental students in all the 40 dental schools of the United States represents the only instance of a profession running its own program. The tests (which are designed to measure scientific vocabulary, writing ability, visualization of patterns and relationships, and digital dexterity) will eventually be used in choosing the ablest and best qualified freshmen for dental schools. . . . Let us hope that this technique will later be applied in selecting the best qualified dental hygiene students also.

THE PUBLIC HEALTH NURSE has long been an ally of dentistry and at least gets some recognition for her anonymous work. The dental profession has officially recognized the shortage of registered nurses and has joined the nationwide campaign to alleviate this shortage. . . . But it is a sad fact that few nurses have received any training in the simplest aspects of oral hygiene. A few of the basic concepts of dental health added to the curriculum in their training schools would vastly improve understanding and efficiency all around. We have had the actual experience of knowing nurses who advised "brushing teeth to keep from getting cavities." And then at the other extreme we had the uncomfortable experience last year during an eight-day sojourn in the hospital of being permitted to brush our teeth at 4 o'clock in the afternoon but not before retiring for the night!

Lakeside Road, Stanwood
Mount Kisco, New York



SOLUTION TO PUZZLE ON PAGE SIX

The Wax Eye Becomes Acrylic

This is the third in a series of articles describing the detailed steps in the making of plastic eyes. Dr. Roberts has been making plastic eyes since 1943, and is convinced that any practicing dentist possesses the ability to make plastic eyes far surpassing the stock eyes on the market today.

The dentist who sets up anterior teeth for a try-in, often steps into his laboratory to alter the arrangement while the patient occupies the chair during the try-in appointment.

This procedure is ideal for the try-in appointment of the plastic eye patient. Allowing plenty of time at this appointment is likely to save not merely a second appointment for the same thing, but a great deal of the operator's time.

In fact, all the steps in making a plastic eye follow denture-making very closely. An impression is taken and a stone model poured; a wax form is built against the model; a glass iris, the finest available reproduction of the human iris, is set in position; the try-in follows.

If the measurements have been charted with exactitude and the iris placed precisely according to these measurements, it is possible that the try-in may be perfect. However, this so seldom happens at first try that it is not expected.

The operator should expect a working model which can be measured, altered and inspected until it is perfect. After the wax form has been inserted in the socket, measure the diameter of the glass iris. Check this measurement against the measurement of the patient's other eye. It is possible that the measurements will vary somewhat. Grind the outer edge of the glass iris until it is one millimeter less in diameter than the normal iris. Replace the iris in the wax form so that the lid sinks in a trifle.

At this point an understanding of the reasons for these variations will aid the operator. One millimeter of space is being reserved for the final transparent coating which will cover the iris as well as the sclera. This transparent coating will lift the lid to its normal position and will also enlarge the iris to the same degree.

This magnifying quality provides the operator with a means of control over all dimensions. Where a large pupil is desired, the outer rim of the iris may be ground away and the iris set deeper in the wax form. This also applies to an iris which is too small. By providing a thicker coating of transparent material, the iris may be enlarged to whatever size the operator desires.

The finished eye may likewise be adjusted so that there is less clear material where it is desirable to reduce the size of the iris. This can be accomplished without altering the normal appearance of the lids, since it is generally the material above and below the iris which affects lid position.

With this factor in mind, check the appearance while the patient looks straight ahead. Appearance will be the sole determining factor, although a re-check of the measurements may be of aid. Any change whatever in the centering of the iris should be made during this try-in appointment.

If need be, experiment several times by changing the position of the iris to the left or right, up or down. Since the glass iris is not perfectly rounded, but rather conical in shape, the sunken appearance of the lid may be lessened somewhat. The lid must still be refrained from assuming a normal position. If necessary, sink the iris deeper into the wax so that the lid still sinks in slightly.

In all probability, the iris should not be set flat in the wax form, but rather tipped down a trifle towards the inner corner. Study the normal eye from several angles. Try the iris in various positions, tipped at different angles, until the appearance is most like that of the normal eye.

When the correct position of the iris has been determined, the iris is one millimeter smaller in diameter than is the normal iris, and the lid is slightly less raised than is the lid of the normal eye, remove the wax form and allow the patient to rinse the socket.

With the aid of shade guides, now match the white of the patient's own eye. A choice of several acrylic jacket materials may be made. HUE-LON, ACRALAIN, and ACRYNAMEL all have some very light shades used in making jacket tips. Shade 1 in HUE-LON (62 to 77 or 81) often makes a perfect scleral shade. Shade A in ACRYNAMEL is another favorite.

Half portions and quarter portions of these acrylic materials may, of course, be blended to procure in-between shadings, just as silicate fillings are varied.

Determine the exact shade or combination of shades, and enter this information, along with the name of the material selected, on the patient's record.

Since this shade selection will no doubt be made in the best light possible, whether natural or artificial, this will be a fine time to complete the patient's record with a rough drawing of the veins in the normal eye. This needs to be done because the veining may be almost unnoticeable in one patient, and so strongly marked in another as to give a bloodshot appearance. Inattention to this detail can make a plastic eye, perfect in every other detail, appear mis-mated.

An ordinary lead pencil can be used. While the veins need not be copied accurately, a rough indication of the veins showing most clearly should be indicated with heavier penciled lines. The most extensively veined network will usually emanate from the inner corner of the eye. This network is likely to consist of fine, overlying lines. One or two heavier lines from the iris toward the outer corner of the eye, will usually be accompanied by many finer lines. Lift the upper lid and copy the lines above the iris when the patient looks down. Hold the lower lid out and down, noting the veins below the iris while the patient looks up. These veins, duplicated on the plastic eye, will be noticeable when the plastic eye is in use because the plastic eye will follow the movements of the patient's normal eye much more freely than does a glass eye.

Note the color of the veins. They may vary from bright red to yellow, or may be a combination.

File this material away for future use.

The next step is to convert the wax into an acrylic material. One does not need to be a laboratory technician to do this. Any dentist is fully capable of the accomplishment, even though he may never have had any previous laboratory experience. There are no undercuts to be considered.

While an ordinary flask may be used, it is cumbersome in all respects for this purpose. ACRALAIN makes a small, oval-shaped bridge flask which is ideal. Other companies may market similar flasks.

Fill the lower half of the flask with a loose mix of stone. Fill the hollowed out portion of the wax with stone, and combine the two. Let the stone harden.

Foil the wax form with tinfoil, about .002. The best way of doing this is the simplest. Cut an oval piece of tinfoil about an inch larger than the eye. Cut a small circle out of the tinfoil just off center. This circle should be about ten millimeters in diameter since nearly, but not quite, the entire iris should be exposed.

Place the foil over the wax eye so that the iris shows through the opening. About one millimeter around the iris should be covered with foil. Using the fingers at first, smooth the foil over the wax and the surrounding stone. It is not necessary nor advisable to use a warm instrument. Any convenient burnisher, large or small, may be used. A piece of cotton, picked up with college pliers and wound firmly about the beak, becomes a fine burnisher.

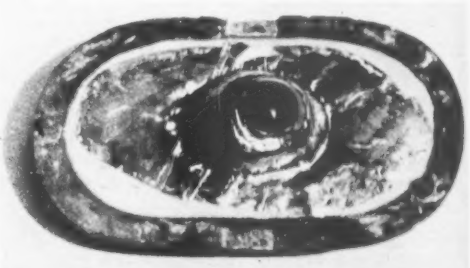


Fig. 1—Tinfoil covers the wax form and the surrounding plaster, leaving the iris almost completely exposed.

When the wax form has been foiled as in Figure 1, mix a small portion of WARD'S SURGICAL CEMENT "WONDRPAK." This is a product of the Westward Dental Products Co. of San Francisco, California. With this paste, cover the area of the iris which has been left exposed. Use the paste when it is soft enough to flatten out smoothly over the iris. As the paste begins to harden, add another small portion in the form of an upright curlycue shown in Figure 2. This irregular shaping of the WONDRPAK is done to form undercurrents which will be used later.

Allow the WONDRPAK to harden overnight.

Paint the exposed surface of the plaster with separating fluid.

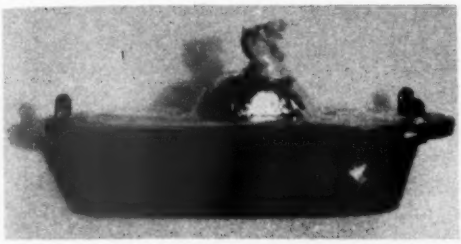


Fig. 2—An irregular mound of Wondrpak is added.

Pour the opposite side of the flask with stone and allow it to harden at least thirty minutes.

To separate the flask, place it in lukewarm water and heat to one hundred and eighty degrees in not less than fifteen minutes. Let the flask remain in the water at one hundred and eighty degrees for another fifteen minutes. Remove from the water, place a knife between the two halves of the flask and gently pry them apart. The melted wax will leave the iris and tinfoil held firmly in the upper half of the flask, as in Figure 3.

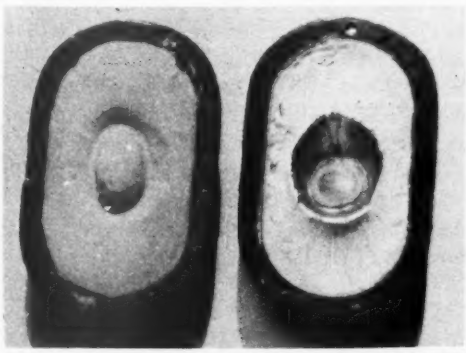


Fig. 3—The opened flask discloses foil and iris held firmly in the upper half of the flask.

Rinse any remaining wax out of the molds with clean water heated to one hundred and eighty degrees. When all wax has been removed, allow the flask to cool to room temperature.

The method of packing the case, no matter what acrylic is used, will be identical. Any differentiation will be in the length of time allowed for curing. Directions for using the various materials should, of course, be followed closely.

Mix the material to be used in any small, wide-mouthed, glass jar which is perfectly clean and has a top. When the material is doughy, place a portion of it in the tinfoiled area surrounding the iris. If possible, use a clean instrument when handling the material. If it is necessary to use the fingers, be certain that they are clean. Place a sheet of wet cellophane over the material.

Place the other half of the flask in position, and place the entire flask in a small hand press. Using the very minimum of pressure, bring the halves together. Abandon pressure at the least sign of resistance to pressure. If the material used is not too stiff, the flask will easily close to the proper point.

Open the flask to ascertain whether or not the case is fully packed. If an excess of material has not been pressed out beyond the edges in all directions, add another portion and re-press. Check the case again. Trim away the excess. Close the flask and let it stand in the press for twenty minutes.

At the end of that time, place the press and case in lukewarm water. Bring the water to a boil in approximately forty-five minutes, or according to the directions of the material used. At the end of that time remove the case, still in the press, from the water. Allow the case to bench cool, preferably overnight, before removing the flask from the press.

When the flask is opened, the plastic eye can be removed easily. Peel away as much of the tinfoil as possible. All the tinfoil should be removed from the iris by peeling. It will be found that some of the acrylic material now covers the edge of the iris.

Trimming and polishing may be done by using the lathe or the straight angle handpiece at the chair. However, only the rough trimming may be done with the lathe.

An hour or two should be allowed for smoothing the entire surface with a small straight mounted stone and burlew wheel. Extreme care should be exercised in trimming away the excess material over the outer iris, since the iris is susceptible to nicks. There is no way of removing any nick in the glass iris, although it will become less noticeable.

The inside of the eye may now be hollowed out until the shell is two or three millimeters thick. A small prophylactic brush can be used to smooth the inside of the eye with fine pumice and to polish it with jeweler's whiting. This whiting can be purchased in either bar or powder form from any of the dental supply houses.

The outer surface can best be pumiced and polished by using the lathe and a rag wheel.

Wash the eye with soap and water. It is now ready for a try-in.

Even at this point the patient will be pleased with the plastic eye. While the lack of veining at this point gives the white of the eye a somewhat flat, staring appearance, the plastic eye is already as lifelike as the usual glass eye in its finished stage. The lid will, of course, still droop a trifle.

Next month's article will give the final steps in veining, finishing and fitting the completed plastic eye.

* * *

Our doubts are traitors, and make us lose the good we oft might win, by fearing to attempt

Shakespeare

℞ FOR RELAXATION

By JOSEPH GEORGE STRACK

DENTIST BERNARD WOLF WEINBERGER — HISTORIAN AND COLLECTOR

We are here to add whatever we can to,
and not to get what we can from, Life.—Sir William Osler

The philosophy of the distinguished physician quoted above is exemplified in the outstanding career of Dentist Bernhard Wolf Weinberger, mining-camp-town boy who has become a prolific and profound contributor to American dental literature, history and philosophy—and one of the artistic hobbyists in the dental profession.

Should you be interested in looking over a selective accumulation of minerals that is more extensive and more complete than those maintained by many universities which teach minerology, B. W. W. has such a collection—embracing specimens of gold, silver, copper, lead, iron and others in their native form; fluorescence and phosphorescence minerals; gem and quartz crystals. If European and Oriental carved ivories and miniature paintings on ivory are items that fascinate you, B. W. W. has collected them also. Should you be an ordinary bookworm who likes a well stocked library of general literature, B. W. W. has an imposing selection of such volumes in his home.

If you have a scholar's yen for examining an extensive collection of early dental books of the sixteenth, seventeeth and eighteenth centuries, B. W. W. is again your man. Add to these one of the largest private collections of dental histories, bibliographies and dental-literature indices to be found in any library and you can understand where B. W. W. obtains his background for his historical and bibliographical knowledge.

PHILOSOPHY OF COLLECTING

"Collecting becomes a habit and an expensive one when once begun," Dr. Weinberger says. "One can own, yet not really possess. For example, all of us have met men who collect books, but collect them merely for the sake of building large collections. They make no attempt to acquire the knowledge within those books. In the most significant sense, then, they never really possess their own books. Collecting, in that superficial aspect, is little better than satisfying vanity or greed. On the other hand, most persons who go in for collecting become interested and are anxious to read and to learn all that they can about their particular hobby. Thus they divert their minds from their daily routine of dental practice. They acquire a healthy, wholesome interest in outside things. They broaden their concepts of life, extend and vitalize their daily patterns of living, and increase and deepen their knowledge of the world. This means new interests, new joys, and a fuller, happier life. They not only develop and widen their cultural backgrounds but often enrich the lives of others by passing on their enthusiasm."

B. W. W.'s interest in collecting minerals is one that stems from his high school days. Boy and man, he has been fascinated by geology and has maintained that youthful interest. His love for collecting he attributes to his parents. His boyhood home in Denver was graced with many fine oil paintings, water colors, sculpture and china. Out of this artistic background and interest came his preoccupation with etching. Like other dentists and physicians, he joined the Haden Etching Club, in 1936 winning the Frank A. Nankivell prize of the club and in 1938 the distinguished merit award of the American Physicians Art Association exhibit at the San Francisco Museum of Art for his etching "Prospector."

HISTORIAN AND BIBLIOGRAPHER

B. W. W. found his chief avocation in his vocation—orthodontics. "I was fortunate to fall under the influence of Drs. Edward H. Angle and E. C. Kirk early in my professional life, and their willingness to advise and help supplied me with the necessary incentive to study,"[1] he says. Back in 1910 he became interested in who was the first to use the word "orthodontia" and when. That interest started him on the road to becoming an outstanding historian, bibliographer, author and librarian of dental literature. He wrote the definitive two-volume work, *Orthodontics*, An Historical Review of Its Origins and Evolution; the *Dental Bibliography* in the New York Academy of

Medicine Library and in his own library; *Dental Literature*, Its Origin and Development; *Pierre Fauchard*, Surgeon Dentist; and more than 150 articles and monographs for dental, medical and scientific journals. After 30 years of research, he is now completing two manuscripts, one dealing with an introductory study to the history of dentistry from 3000 B.C. to 1800 A.D., and the other dealing with the history of dentistry in America from 1620 to 1800. While working on these manuscripts he began to trace the origin of various dental instruments and equipment, which resulted in his unique collection of this early dental armamentarium. Lacking space for such larger items as chairs and cabinets, B. W. W. was forced to take up another hobby—that of making scale models of many of these.

WASHINGTON'S TEETH

That collecting and research can become stimulating and a challenging hobby filled with adventure and surprise and suspense, is dramatically demonstrated by many of his experiences.[1] While taking one of many assignments from his professional mentor, Dr. Kirk – one of the leading dental educators of his day, celebrated editor of the *Dental Cosmos*, and recipient of the Jarvie and Jenkin medals – B. W. W. became involved with a set of George Washington's teeth, and B. W. W. himself made history – dental history – in that encounter. Dr. Kirk asked B. W. W. to track down the descendants of Washington's dentist, John Greenwood, in New York City, and try to get some family records or other documents that might be of historical value in connection with early American dentistry. B. W. W. dutifully started out on his mission. That was in 1926, when the new building of the Museum of the City of New York was being dedicated. Reading newspaper accounts of the dedication, he learned that a set of Washington's false teeth was on exhibition, and hurried to the museum. Inquiring about the teeth, he was told that they had been removed from the exhibit after the opening night. He asked about the owner, but this information was refused. Undaunted, he went to see the curator, but that proved to be a feat in itself. However, B. W. W. was on the trail of history and neither the football field nor the battlefield can boast greater exhibitions of tenacity, persistence and determination than research when researchers sense a clue to new facts. B. W. W. finally got to see the curator. As ever, Bernhard Wolf Weinberger was well documented He explained his professional interest, showed Dr. Kirk's letter, and even produced a communication from Isaac John Greenwood, grandson of the first President's dentist. The curator was properly impressed but remained impressively proper. He promised to notify the anonymous owner of the precious teeth of B. W. W.'s interest and to let that anonymous gentleman decide whether to advance the cause of American dental history or not. Within days, B. W. W. received a letter directly from the late John Rudd Greenwood, great-great grandson of John Greenwood, inviting B. W. W. to visit with him. Out of that first meeting developed a warm personal relationship and a fruitful cooperative effort to piece together the role that the Greenwoods played in our early dental history. It was this friendship, in fact, that prompted young John Rudd Greenwood's sisters, Ellen and Mary Greenwood, to turn over to B. W. W. that priceless denture, made in 1789 for Washington; the first foot-propelled dental engine; and other invaluable items, for the New York Academy of Medicine.

An interesting footnote to this story is the reason for the removal of the denture from public display at the museum. B. W. W.'s friend explained that apparently the Daughters of the American Revolution and the Colonial Dames considered such a personal Washington item too sacred for the public eye, or perhaps too gruesome; at any rate they demanded that it be locked up, as they had previously done at the Philadelphia Centennial in 1876.

Another morning B. W. W. received an S O S in the mail from Dr. Kirk. "Do you know," inquired the good mentor, "where I had published, just a few years ago, a portrait of Pierre Fauchard . . . and where it now could be found?" B. W. W.'s reply was: "Your 'few years' are exactly twenty-four, and if you will turn your head over your left shoulder and

glance on the wall . . . you will find the original painting from which the published picture was made." All of which shows how much a master must depend on his pupils to guide him. "It also illustrates," comments B. B. W., "why historians cannot base the time of discoveries and other events unless actually documented, for the years roll by rapidly."

JEAN PIERRE LE MAYEUR

Another adventure involved Jean Pierre Le Mayeur, who, perhaps, was the first man whom one could really call a dentist who treated Washington. John Greenwood, who followed Le Mayeur as presidential dentist, became better known, probably because of the many dentures he made for Washington. B. W. W. did some debunking of history in his scholarly sketch on the life of Le Mayeur. It was B. W. W., for instance, who established the dentist's correct name and who proved that LeMeyeur did not come to America with Lafayette and the French troops, as had been believed, but came here on a more mundane mission — to settle the estate of a brother.[2] This assignment was the last that B. W. W. carried out for Dr. Kirk, for the latter died soon after dictating a letter of thanks to B. W. W. for this accomplishment.

But B. W. W. was not satisfied with his job, however, for he was unable to extend his work on Le Mayeur beyond the year 1788. He required information about Le Mayeur beyond that year. Diligent as he was, he could find nothing. While in Richmond, Virginia, one day in 1937 he entered the Valentine Museum there. The staff was just completing an exhibit of Colonial costumes and B. W. W. watched them at work. Just then an attendant placed a placard before one of the male figures. B. W. W. bent over and read it. It said: "Worn by Dr. Le Mayeur, 1800." Says B. W. W. of that extraordinary experience: "I wouldn't have been more startled had the figure spoken and said, 'Yes, it is I, Le Mayeur for whom you've been searching all these years.'"[1] The trail from there eventually led to Le Mayeur's will, and established that he did not return to France but retired to his Sweet Springs home in Virginia where he died in 1806.

PROFESSIONAL AWARDS

Dr. Weinberger's many contributions to dentistry have received wide professional recognition. From the First District Dental Society, he received an illuminated testimonial in 1929; the Benjamin Lord Prize in 1932; and in 1946 a watch engraved "In appreciation of 32 years of devoted services as Librarian"; the New York Dental Centennial medal for meritorious service, in 1934; an illuminated testimonial from the New York Dental Centennial Committee, in 1935; and the Sigma Epsilon Delta Plaque, in 1941. A member and former Grand Master of the latter society, he is also a member of the Delta Sigma Delta and Omicron Kappa Upsilon.

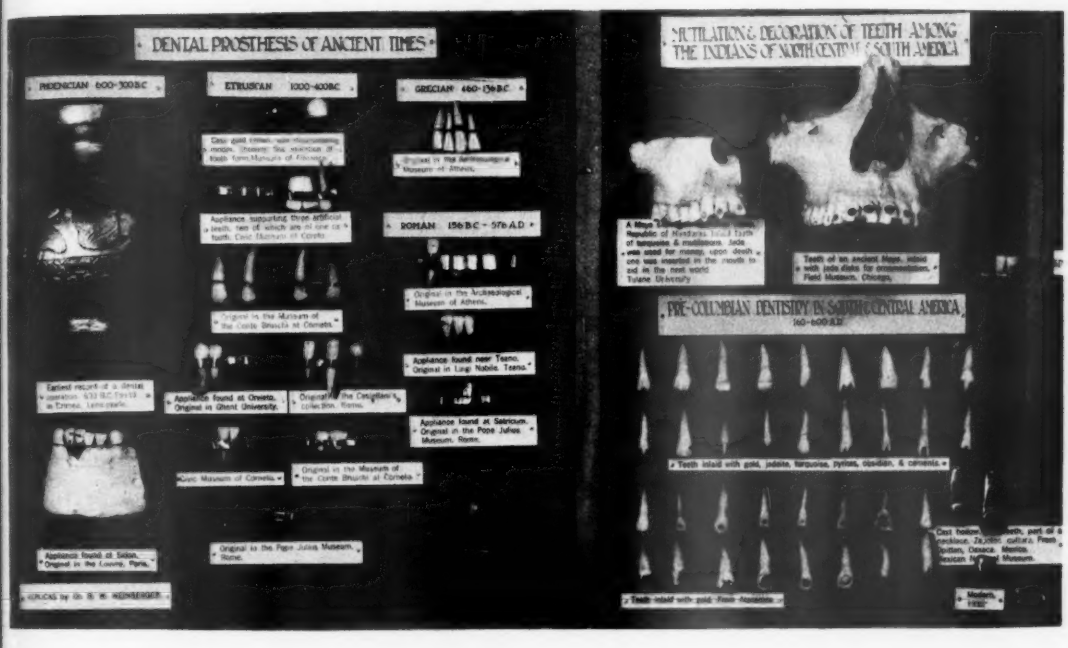
He is an active participant, holds official posts, or is a leading light in more than a score of dental and medical societies — American, Mexican, French, and international. Many dentists now practicing will remember him as the erudite lecturer on dental history and literature at the New York University College of Dentistry, during 1923-1929, and as professor during 1929-1931; or as special lecturer on orthodontic history at the University of Pennsylvania in 1927 and at the University of Maryland's Baltimore College of Dental Surgery in 1930.

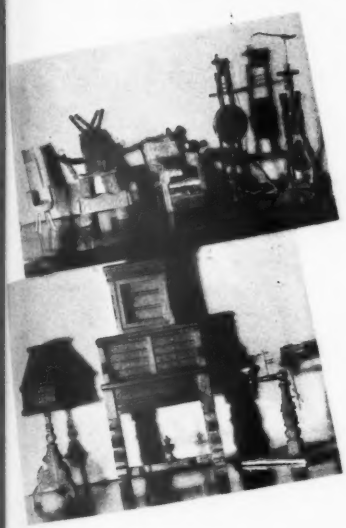
Dr. Weinberger received his D.D.S. from the University of Pennsylvania in 1908 and his post-graduate training in orthodontia at the Angle School of Orthodontia, New London, Connecticut, in 1909, obtaining one of the first certificates issued by the American Board of Orthodontia in 1930.

He maintains his office at 119 West 57 Street, New York City, and also makes his home in Manhattan. He is married and the father of two children, Suzanne and Bernhard. Born in an atmosphere of gracious living, the children are learning that "We are here to add whatever we can to, not get what we can from, Life."

[1] WEINBERGER, B. W. Adventures with Books and Manuscripts.
News Letter, International College of Dentists, 1944, Dec. 15 and 16.

[2] —Jean Pierre Le Mayeur in America. No Longer the Man of Mystery.
Dental Cosmos, 1934, 76:569-578.


DENTAL PROSTHESIS OF ANCIENT TIMES
PHOENICIAN 600-300 B.C.
ETRUSCAN 1000-400 B.C.
GRECIAN 460-136 B.C.
ROMAN 136 B.C.-476 A.D.
MUTILATION & DECORATION OF TEETH AMONG THE INDIANS OF NORTH CENTRAL & SOUTH AMERICA
PRE-COLUMBIAN DENTISTRY IN SOUTH CENTRAL AMERICA
Teeth inlaid with gold, jadeite, turquoise, pyrites, obsidian, & cements.



3000 YEARS OF DENTISTRY

Teeth in Ancient Times

LEFT: *Historic Dental Equipment — (left above) left to right, chair is replica of one appearing in first dental book; 17th Century English; replica of one James Snell illustrates in his 1829 book; replica of spinning wheel turned into a foot engine and used by John Greenwood, his son and grandson, from 1790 to about 1850; replica of Slack's engine, made in 1780. (Left below) left to right, cabinet by Thomas H. Baxter in 1870; Johnson and Lund's of 1781; fountain cuspidor is Whitcomb's dental "fountain spitoon," about 1870. From the collections of Dr. Weinberger, who carved the replicas.*

RIGHT: *A Dentist's Bookplate — Drawn by Dr. Weinberger, the motto, translated, reads: "To know where to find anything when one desires it is the greatest part of education."*

COLLECTING

Americana
Antiques
Armor
Autographs
Books
Bottles
China
Cigarette lighters
Coins
Clocks
Costumes and uniforms
Diaries
Documents
Dolls
Drawings
Etchings
Frankliniana
Furniture
Glass
Ironworks
Libraries
Lincolniana
Manuscripts
Maps
Medals and decorations
Models; ships, locomotive, etc.
Newspaper clippings
Paintings
Paper money
Periodicals
Pewter
Phonograph records
Porcelain
Pottery
Prints
Relics and tools; Indian, historic American
Rugs
Sheet music
Stamps
Toy orchestras
Washingtonia
Watches
Weapons

Canada's Oldest Practicing Dentist

BANFF, Alberta—Dr. A. J. Garesche, 87, of Victoria, Eritish Columbia, has been an active practitioner in the dental profession for over 66 years and is still going strong. He says that in all his years of practice he has never hurt himself once!

Reputed to be the dentist with the longest record in years of practice in the Dominion of Canada, and likely on the North American Continent, Dr. Garesche is a delegate to the biennial convention of the Western Canada Dental Association and the annual convention of the British Columbia Dental Association, in the Banff Springs Hotel.

Dr. Garesche brought with him one of the finest collections of old time dental instruments in existence. Some of them reminiscent of the torture chambers of the middle ages, and form one of the most interesting displays at the convention. Since these instruments have been promised to the University of Pennsylvania at the request of the University authorities, this will be the last time which they will be on display in Canada.

Dr. Garesche is a graduate of the University of Pennsylvania Dental College and the instruments will be placed on display in the Museum of the Dental Faculty there.

Dr. Garesche started his professional career in 1881 as an apprentice dentist in Portland, Oregon, and a few years later he entered the University when it opened its Dental section. He graduated in dentistry in 1887. He has no record of the dental work which he has accomplished during the past 65 years, but he estimates that he has performed no less than 100,000 dental operations.

In the old days, he recalled with a smile, it was necessary for the dentist to be stronger than the patient, for many times, the session in the dentists' chair became a sort of tug-of-war between the dentist and the unfortunate whose tooth had to be extracted.

Local anaesthetics were unknown to dentists in those days, and he said "a modern jukebox would have been an asset in drowning the howls of the patient!"

Dr. A. J. Garesche, 87, of Victoria, B.C., still an active dental practitioner, is reputed to be the dentist with the longest record of years in practice in Canada, and likely on the North American continent. He has been 66 years in the business. He is attending the biennial convention of the Western Canada Dental Association and the annual British Columbia Dental Association convention, in the Banff Springs Hotel, Banff, Alberta. He is shown here with his collection of old-time dental instruments, considered one of the finest in existence. This is the last public display in Canada as the collection is being turned over to the Museum of the University of Pennsylvania's dental faculty, Dr. Garesche's alma mater.

Toying with an instrument which to the lay man looked like a cross between a thumbscrew and a tire iron, the doctor acknowledged that dentistry had come a long way since those early days. He described the instrument as "an intra-dentine cocaine pressure instrument for anaesthesing teeth."

Two ancient electric mallets were the pride of Dr. Garesche's collection. They were formerly used in installing gold fillings. In commenting on the modern methods of sterilizing instruments, he said "No one ever thought of such precautions in the old days."

Phil Glanzer
Tivoli Theater Bldg.
Toronto, Canada